ENVIRO CLEAN CARDINAL

October 31, 2018

Ohio EPA/DAPC
Southeast District Office
2195 Front St.
Logan, OH 43138

RE: Annual NSPS OOOOa Reporting
August 2, 2017 - August 1, 2018
Triad Hunter, LLC

Dear Sir/Madam:

Triad Hunter, LLC (Triad) owns and operates multiple facilities in Ohio that are subject to Title 40 Code of Federal Regulations Part 60 New Source Performance Standards (NSPS) Subpart OOOOa. In compliance with that rule, Enviro Clean Cardinal, LLC (ECC) is submitting the annual report on behalf of Triad.

Statement of Compliance:
I, Daren Rader, certify that I am the Responsible Official, and that, based on information and belief formed after reasonable inquiry, the statements and information contained in this compliance report are true, accurate, and complete.

Signature	Date
10/30/18	

Daren Rader / Manager – Operations Unconventional	(740) 760-0573
Name/Title	Phone

If you have any questions concerning the report, please contact Brett Eaton at (405) 842-1066.

Sincerely,
Enviro Clean Cardinal, LLC

Enclosure

Company Name: Triad Hunter, LLC
Reporting Period: August 2, 2017 - August 1, 2018
Reporting: Site Information

SITE INFORMATION	Facility Record No. * **(Field value will automatically generate if a value is not entered.)**	1	2
	Company Name * (§60.5420a(b)(1)(i))	Triad Hunter, LLC	Triad Hunter, LLC
	Facility Site Name * (§60.5420a(b)(1)(i))	Farley	Upper Ormet
	US Well ID or US Well ID Associated with the Affected Facility, if applicable. * (§60.5420a(b)(1)(i))	34-167-2-9723, 34-167-2-9720-01, 34-167-2-9724-01	34-111-2-4456, 34-111-2-4777
	Address of Affected Facility * (§60.5420a(b)(1)(i))	N/A	N/A
	Address 2	N/A	N/A
	City *	Macksburg	Clarington
	County *	Washington	Monroe
	State Abbreviation *	OH	OH
	Zip Code *	45746	43915
	Responsible Agency Facility ID (State Facility Identifier)	N/A	N/A
ALTERNATIVE ADDRESS INFORMATION (IF NO PHYSICAL ADDRESS AVAILABLE FOR SITE *)	Description of Site Location (§60.5420a(b)(1)(i))	From Elba, go three-quarters (0.75) of a mile west and north on HWY 821 and turn north onto lease road to Facility.	From Clarington, go two and three-tenths (2.3) miles south on OH-7, go two (2) miles southwest on Long Ridge Road, and turn outh into Facility.
	Latitude of the Site (decimal degrees to 5 decimals using the North American Datum of 1983) (§60.5420a(b)(1)(i))	39.61890	39.71322
	Longitude of the Site (decimal degrees to 5 decimals using the North American Datum of 1983) (§60.5420a(b)(1)(i))	-81.41928	-80.85795
REPORTING INFORMATION	Beginning Date of Reporting Period.* (§60.5420a(b)(1)(iii))	8/2/2017	8/2/2017
	Ending Date of Reporting Period.* (§60.5420a(b)(1)(iii))	8/1/2018	8/1/2018
PE CERTIFICATION	Please provide the file name that contains the certification signed by a qualified professional engineer for each closed vent system routing to a control device or process. * (§60.5420a(b)(12)) Please provide only one file per record.	Pneumatic Pumps: Included in Report	N/A
ADDITIONAL INFORMATION	Please enter any additional information.	N/A	N/A
	Enter associated file name reference.	N/A	N/A

Company Name: Triad Hunter, LLC
Reporting Period: August 2, 2017 - August 1, 2018
Reporting: Well Fracs

	Facility Record No. * **(Select from dropdown list** - *may need to scroll up*)	1	1	1	2	2
	United States Well Number* (§60.5420a(b)(1)(ii))	34-167-2-9723	34-167-2-9720-01	34-167-2-9724-01	34-111-2-4456	34-111-2-4777
All Well Completions	Well Completion ID * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(i))	Farley 1304	Farley 1305	Farley 1306	Ormet 7-15	Ormet 11-15
	Records of deviations where well completion operations with hydraulic fracturing were not performed in compliance with the requirements specified in § 60.5375a. * (§60.5420a(b)(2)(ii) and §60.5420a(c)(1)(ii))	N/A	N/A	N/A	N/A	N/A
Well Affected Facilities Required to Comply with §60.5375a(a) and §60.5375a(f)	Well Location * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	39.618897, -81.419283	39.618894, -81.419325	39.618855, -81.419241	39.713216, -80.857954	39.713389, -80.858131
	Date of Onset of Flowback Following Hydraulic Fracturing or Refracturing * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	1/22/2018	1/24/2018	1/22/2018	3/10/2018	3/11/2018
	Time of Onset of Flowback Following Hydraulic Fracturing or Refracturing * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	02:30 AM	10:00 AM	10:30 PM	08:00 PM	12:00 AM
	Date of Each Attempt to Direct Flowback to a Separator * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	1/25/2018	1/28/2018	1/24/2018	3/11/2018	3/14/2018
	Time of Each Attempt to Direct Flowback to a Separator * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	01:30 PM	12:30 PM	01:00 PM	05:05 PM	04:00 AM
	Date of Each Occurrence of Returning to the Initial Flowback Stage * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	N/A	N/A	N/A	N/A	N/A
	Time of Each Occurrence of Returning to the Initial Flowback Stage * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	N/A	N/A	N/A	N/A	N/A
	Date Well Shut In and Flowback Equipment Permanently Disconnected or the Startup of Production * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	1/31/2018	1/30/2018	1/30/2018	3/27/2018	3/27/2018
	Time Well Shut In and Flowback Equipment Permanently Disconnected or the Startup of Production * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	1:00 PM	3:00 PM	4:00 PM	11:10 AM	1:20 PM
	Duration of Flowback in Hours * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	226.50	149.00	185.50	399.17	397.33
	Duration of Recovery in Hours * *(Not Required for Wells Complying with §60.5375a(f))* (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A))	143.50	50.50	147.00	378.08	321.33
	Disposition of Recovery * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	Sent to Sales	Sent to Sales	Sent to Sales	Sent to Sales	Sent to Sales
	Duration of Combustion in Hours * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	N/A	N/A	N/A	N/A	N/A
	Duration of Venting in Hours * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	N/A	N/A	N/A	N/A	N/A
	Reason for Venting in lieu of Capture or Combustion * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	N/A	N/A	N/A	N/A	N/A

Company Name: Triad Hunter, LLC
Reporting Period: August 2, 2017 - August 1, 2018
Reporting: Well Fracs

	Facility Record No. * **(Select from dropdown list** - *may need to scroll up* **)**	1	1	1	2	2
	United States Well Number* (§60.5420a(b)(1)(ii))	34-167-2-9723	34-167-2-9720-01	34-167-2-9724-01	34-111-2-4456	34-111-2-4777
All Well Completions	Well Completion ID * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(i))	Farley 1304	Farley 1305	Farley 1306	Ormet 7-15	Ormet 11-15
§60.5432a Low Pressure Wells	Please provide the file name that contains the Record of Determination and Supporting Inputs and Calculations * (§60.5420a(b)(2)(iii) and §60.5420a(c)(1)(vii)) Please provide only one file per record.	N/A	N/A	N/A	N/A	N/A
Exceptions Under §60.5375a(a)(3) - Technically Infeasible to Route to the Gas Flow Line or Collection System, Re-inject into a Well, Use as an Onsite Fuel Source, or Use for Another Useful Purpose Served By a Purchased Fuel or Raw Material	Well Location * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iv))	N/A	N/A	N/A	N/A	N/A
	Specific Exception Claimed * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iv))	N/A	N/A	N/A	N/A	N/A
	Starting Date for the Period the Well Operated Under the Exception * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iv))	N/A	N/A	N/A	N/A	N/A
	Ending Date for the Period the Well Operated Under the Exception * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iv))	N/A	N/A	N/A	N/A	N/A
	Why the Well Meets the Claimed Exception * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iv))	N/A	N/A	N/A	N/A	N/A
	Name of Nearest Gathering Line * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	N/A	N/A	N/A	N/A	N/A
	Location of Nearest Gathering Line * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	N/A	N/A	N/A	N/A	N/A
	Technical Considerations Preventing Routing to this Line * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	N/A	N/A	N/A	N/A	N/A
	Capture, Reinjection, and Reuse Technologies Considered * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	N/A	N/A	N/A	N/A	N/A
	Aspects of Gas or Equipment Preventing Use of Recovered Gas as a Fuel Onsite * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	N/A	N/A	N/A	N/A	N/A
	Technical Considerations Preventing Use of Recovered Gas for Other Useful Purpose * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	N/A	N/A	N/A	N/A	N/A
	Additional Reasons for Technical Infeasibility * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A)-(B))	N/A	N/A	N/A	N/A	N/A

Company Name: Triad Hunter, LLC
Reporting Period: August 2, 2017 - August 1, 2018
Reporting: Well Fracs

	Facility Record No. * **(Select from dropdown list** - *may need to scroll up*)	1	1	1	2	2
	United States Well Number* (§60.5420a(b)(1)(ii))	34-167-2-9723	34-167-2-9720-01	34-167-2-9724-01	34-111-2-4456	34-111-2-4777
All Well Completions	Well Completion ID * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(i))	Farley 1304	Farley 1305	Farley 1306	Ormet 7-15	Ormet 11-15
Well Affected Facilities Meeting the Criteria of §60.5375a(a)(1)(iii)(A) - Not Hydraulically Fractured/Refractured with Liquids or Do Not Generate Condensate, Intermediate Hydrocarbon Liquids, or Produced Water (No Liquid Collection System or Seperator Onsite)	Well Location* (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A) and (C))	N/A	N/A	N/A	N/A	N/A
	Date of Onset of Flowback Following Hydraulic Fracturing or Refracturing * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A) and (C))	N/A	N/A	N/A	N/A	N/A
	Time of Onset of Flowback Following Hydraulic Fracturing or Refracturing * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A) and (C))	N/A	N/A	N/A	N/A	N/A
	Date Well Shut In and Flowback Equipment Permanently Disconnected or the Startup of Production * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A) and (C))	N/A	N/A	N/A	N/A	N/A
	Time Well Shut In and Flowback Equipment Permanently Disconnected or the Startup of Production * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A) and (C))	N/A	N/A	N/A	N/A	N/A
	Duration of Flowback in Hours * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A) and (C))	N/A	N/A	N/A	N/A	N/A
	Duration of Combustion in Hours * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A) and (C))	N/A	N/A	N/A	N/A	N/A
	Duration of Venting in Hours * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A) and (C))	N/A	N/A	N/A	N/A	N/A
	Reason for Venting in lieu of Capture or Combustion * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(A) and (C))	N/A	N/A	N/A	N/A	N/A
	Does well still meet the conditions of §60.5375a(1)(iii)(A)? * {§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(C)(*2*)}	N/A	N/A	N/A	N/A	N/A
	If applicable Date Well Completion Operation Stopped * {{§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(C)(*2*)}	N/A	N/A	N/A	N/A	N/A
	If applicable: Time Well Completion Operation Stopped * {{§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(C)(*2*)}	N/A	N/A	N/A	N/A	N/A
	If applicable: Date Separator Installed * {{§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(C)(*2*)}	N/A	N/A	N/A	N/A	N/A
	If applicable: Time Separator Installed * {{§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(C)(*2*)}	N/A	N/A	N/A	N/A	N/A
	Are there liquids collection at the well site? Based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. * {{§60.5420a(b)(2)(i) and §60.5420a(c)(1)(iii)(C)(*3*)}	N/A	N/A	N/A	N/A	N/A
Well Affected Facilities Required to Comply with Both §60.5375a(a)(1) and (3) Using a Digital Photo in lieu of Records Required by §60.5420a(c)(1)(i) through (iv)	Please provide the file name that contains the Digital Photograph with Date Taken and Latitude and Longitude Imbedded (or with Visible GPS), Showing Required Equipment (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(v)) Please provide only one file per record.	N/A	N/A	N/A	N/A	N/A
Well Affected Facilities Meeting the Criteria of §60.5375a(g) - <300 scf of Gas per Stock Tank Barrel of Oil Produced	Well Location* (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(vi)(B))	N/A	N/A	N/A	N/A	N/A
	Please provide the file name that contains the Record of Analysis Performed to Claim Well Meets §60.5375a(g), Including GOR Values for Established Leases and Data from Wells in the Same Basin and Field * (§60.5420a(b)(2)(i) and §60.5420a(c)(1)(vi)(A)) Please provide only one file per record.	N/A	N/A	N/A	N/A	N/A
	Does the well meet the requriements of §60.5375a(g)? Based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. * {{§60.5420a(b)(2)(i) and §60.5420a(c)(1)(vi)(C)}	N/A	N/A	N/A	N/A	N/A

Company Name: Triad Hunter, LLC
Reporting Period: August 2, 2017 - August 1, 2018
Reporting: Fugitives

	Facility Record No. * **(Select from dropdown list** - *may need to scroll up* **)**	1	1	1	2
	Identification of Each Affected Facility * (§60.5420a(b)(1))	Farley	Farley	Farley	Upper Ormet
	Date of Survey * (§60.5420a(b)(7)(i))	3/14/2018	6/22/2018	6/22/2018	6/22/2018
	Survey Begin Time * (§60.5420a(b)(7)(ii))	07:54 AM	10:04 AM	10:04 AM	08:16 AM
	Survey End Time * (§60.5420a(b)(7)(ii))	08:32 AM	10:55 AM	10:55 AM	08:45 AM
	Name of Surveyor * (§60.5420a(b)(7)(iii))	Steve LaRue	Steve LaRue	Steve LaRue	Steve LaRue
	Ambient Temperature During Survey * (§60.5420a(b)(7)(iv))	24	72	72	71
	Sky Conditions During Survey * (§60.5420a(b)(7)(iv))	Snow	Rain	Rain	Rain
	Maximum Wind Speed During Survey * (§60.5420a(b)(7)(iv))	12 mph	9 mph	9 mph	10 mph
	Monitoring Instrument Used * (§60.5420a(b)(7)(v))	FLIR GF-320	FLIR GF-320	FLIR GF-320	FLIR GF-320
	Deviations From Monitoring Plan (If none, state none.) * (§60.5420a(b)(7)(vi))	None	None	None	None
	Type of Component for which Fugitive Emissions Detected * (§60.5420a(b)(7)(vii))	Connection	Connection	Valve	Regulator
	Number of Each Component Type for which Fugitive Emissions Detected * (§60.5420a(b)(7)(vii))	4	8	2	1
	Type of Component Not Repaired as Required in §60.5397a(h) * (§60.5420a(b)(7)(viii))	N/A	N/A	N/A	N/A
	Number of Each Component Type Not Repaired as Required in § 60.5397a(h) * (§60.5420a(b)(7)(viii))	N/A	N/A	N/A	N/A
	Type of Difficult-to-Monitor Components Monitored * (§60.5420a(b)(7)(ix))	N/A	N/A	N/A	N/A
	Number of Each Difficult-to-Monitor Component Type Monitored * (§60.5420a(b)(7)(ix))	N/A	N/A	N/A	N/A
	Type of Unsafe-to-Monitor Component Monitored * (§60.5420a(b)(7)(ix))	N/A	N/A	N/A	N/A
	Number of Each Unsafe-to-Monitor Component Type Monitored * (§60.5420a(b)(7)(ix))	N/A	N/A	N/A	N/A
	Date of Successful Repair of Fugitive Emissions Component * (§60.5420a(b)(7)(x))	4/13/2018	7/9/2018	7/9/2018	7/9/2018
	Type of Component Placed on Delay of Repair * (§60.5420a(b)(7)(xi))	N/A	N/A	N/A	N/A
	Number of Each Component Type Placed on Delay of Repair * (§60.5420a(b)(7)(xi))	N/A	N/A	N/A	N/A
	Explanation for Delay of Repair * (§60.5420a(b)(7)(xi))	N/A	N/A	N/A	N/A
	Type of Instrument Used to Resurvey Repaired Components Not Repaired During Original Survey * (§60.5420a(b)(7)(xii))	FLIR GF-320	FLIR GF-320	FLIR GF-320	FLIR GF-320
OGI	Training and Experience of Surveyor * (§60.5420a(b)(7)(iii))	ITC Certified, 0-5 Years Experience	ITC Certified, 0-5 Years Experience	ITC Certified, 0-5 Years Experience	ITC Certified, 0-5 Years Experience
Compressor Station Affected Facility Only	Was a monitoring survey waived under § 60.5397a(g)(5)? * (§60.5420a(b)(7))	N/A	N/A	N/A	N/A
	If a monitoring survey was waived, the calendar months that make up the quarterly monitoring period for which the monitoring survey was waived. * (§60.5420a(b)(7))	N/A	N/A	N/A	N/A

Company Name:	Triad Hunter, LLC
Reporting Period:	August 2, 2017 - August 1, 2018
Reporting:	Pneumatic Pumps

	Facility Record No. * **(Select from dropdown list** - *may need to scroll up* **)**	1
	Identification of Each Pump * (§60.5420a(b)(1))	PUMP1, PUMP2
	Was the pneumatic pump constructed, modified, or reconstructed during the reporting period? * (§60.5420a(b)(8)(i))	Constructed
	Which condition does the pneumatic pump meet? * (§60.5420a(b)(8)(i))	Emissions routed to a control device
	If your route emissions to a control device and the control device is designed to achieve <95% emissions reduction, specify the percent emissions reduction. * (§60.5420a(b)(8)(i)(C))	98%
Pneumatic Pumps Previously Reported that have a Change in Reported Condition During the Reporting Period	Identification of Each Pump * (§60.5420a(b)(8)(ii))	N/A
	Date Previously Reported* (§60.5420a(b)(8)(ii))	N/A
	Which condition does the pneumatic pump meet? * (§60.5420a(b)(8)(ii))	N/A
	If you now route emissions to a control device and the control device is designed to achieve <95% emissions reduction, specify the percent emissions reduction. * (§60.5420a(b)(8)(ii) and §60.5420a(b)(8)(i)(C))	N/A
	Records of deviations where the pneumatic pump was not operated in compliance with requirements* (§60.5420a(b)(8)(iii) and §60.5420a(c)(16)(ii))	N/A

Closed Vent System Design and Capacity Assessment Report

FACILITY IDENTIFICATION

Owner / Operator	Blue Ridge Mountain Resourc	***County***	Washington
Facility Name	Farley Production Facility	***State***	Ohio
Facility Code		***Date***	1/18/2018

OVERALL RESULT **PASS**

CERTIFICATION

I certify that the closed vent system design and capacity assessment was prepared under my direction and supervision. I further certify that the closed vent system design and capacity assessment was conducted and this report was prepared pursuant to the requirements of subpart OOOOa of 40 CFR part 60. Based on my professional knowledge and experience, and inquiry of personnel involved in the assessment, the certification submitted herein is true, accurate, and complete. I am aware that there are penalties for knowingly submitting false information.

Professional Engineer Name	Laura Worthen Lodes
State of Registration	Ohio
Registration Number	79703

Laura Michelle Worthen Lodes Digitally signed by Laura Michelle Worthen Lodes
Date: 2018.01.22 11:29:37 -06'00'

Signature ***Date***

Affix Seal Here

Closed Vent System Design and Capacity Assessment Report

SIMULATION INFORMATION

ProMax File	farley_rev18.pmx
Flowsheet	Farley Facility
Stream	41

FLOW BASIS

Basis	Simulation
Flow Multiplier	2

VALVE PARAMETERS

Valve Name		
Valve Cv		
Nominal Valve Flow	*bbl/d*	
Instantaneous Flow	*bbl/d*	
Calculated Valve Flow	*bbl/d*	

USER INPUT FLOWS

Specified Vapor	*MSCFD*	3.7
Specified Liquid	*bbl/d*	96.9

CALCULATED FLOWS

Nominal Vapor	*MSCFD*	5.5
Peak Vapor	*MSCFD*	12.9
Vapor Heating Value	*MMBtu/h*	1.6
Nominal Liquid	*bbl/d*	95.1
Peak Liquid	*bbl/d*	193.8

VENT SYSTEM PARAMETERS

Flow Correlation	Spitzglass Low P	
Tank Temperature	*°F*	90
Atmospheric Pressure	*psia*	14.326
Relief Pressure	*oz/in² (g)*	12
Control Device DP	*oz/in²*	5
Elevation Change	*ft*	-20
Collected Liquid Height	*in*	12

NOTES

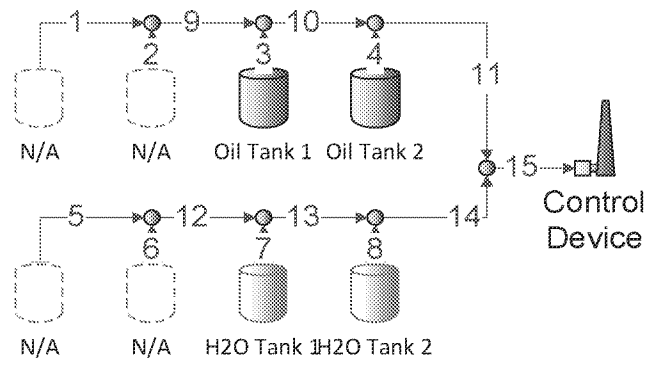
TANK RESULTS

Tank	Tank in Use	Pressure oz/in² (g)	Pressure psig	Relief Frac %
N/A	No	9.46	0.591	78.8%
N/A	No	9.46	0.591	78.8%
Oil Tank 1	Yes	9.46	0.591	78.8%
Oil Tank 2	Yes	9.46	0.591	78.8%
N/A	No	9.46	0.591	78.8%
N/A	No	9.46	0.591	78.8%
H2O Tank 1	No	9.46	0.591	78.8%
H2O Tank 2	No	9.46	0.591	78.8%

VENT LINE PARAMETERS

Pipe #	Pipe ID in	Length ft	# Fittings	Flow MSCFD	Pressure oz/in² (g)
1	N/A	N/A	N/A	0.0	9.46
2	N/A	N/A	N/A	0.0	9.46
3	4.026	5	2	6.4	9.46
4	4.026	5	2	6.4	9.46
5	N/A	N/A	N/A	0.0	9.46
6	N/A	N/A	N/A	0.0	9.46
7	4.026	5	2	0.0	9.46
8	4.026	5	2	0.0	9.46
9	N/A	N/A	N/A	0.0	9.46
10	4.026	15	2	6.4	9.46
11	4.026	7.5	2	12.9	9.46
12	N/A	N/A	N/A	0.0	9.46
13	4.026	15	2	0.0	9.46
14	4.026	7.5	2	0.0	9.46
15	4.026	143	4	12.9	9.46

VENT SYSTEM CONFIGURATION



Simulated by: ProMax® 4.0.16071.0

Owner / Operator	Blue Ridge Mountain Resources
Facility Name	Farley Production Facility
Facility Code	

GLOSSARY

SIMULATION INFORMATION

The ProMax® File, Flowsheet, and Stream are those selected on the Vent Assessment Tool Calculation tab.

FLOW BASIS

Basis – The Flow Basis indicates the method used to determine Peak Flow in the facility. "Controlling Valve" uses a valve flow coefficient (Cv) to calculate the maximum liquid flow in the facility. "User Input Vapor" is a direct user input for the vapor flow into the vent system. "User Input Liquid" is a direct user input for the liquid flow out of the simulated tank (i.e. the production rate of post-flash liquid). "Simulation" indicates that the vapor and liquid flows are taken directly from the simulation. In all cases, Peak Flow is a product of the Flow Multiplier and the vapor or liquid flowrate as determined by the Flow Basis selection. Peak Vapor Flow is also inclusive of displacement by liquid entering the tank.

Flow Multiplier – A multiplier used to determine Peak Flow, regardless of the selected Flow Basis.

VALVE PARAMETERS

Valve Name –The valve considered to be controlling flow through the facility in the ProMax file.

Valve Cv - The user-specified flow coefficient for the selected valve.

Nominal Valve Flow – Average daily flow rate through the valve. This comes directly from the ProMax file.

Instantaneous Flow - The maximum flowrate through the valve as calculated from the fluid properties, pressure differential, and flow coefficient of the valve.

Calculated Valve Flow - Peak liquid flow through the valve determined from the valve characteristics, multiplied by the Flow Multiplier.

USER INPUT FLOWS

Specified Vapor – User-specified flash gas rate out of the tanks.

Specified Liquid - User-specified liquid flow out of the simulated tanks (i.e. maximum post-flash liquid rate).

CALCULATED FLOWS

Nominal Vapor – Flash gas rate out of the tanks based on the average daily production, taken from the ProMax file.

Peak Vapor – Maximum vapor rate into the system, a product of the Flow Multiplier and vapor rate as determined by the Flow Basis selection. Peak Vapor includes volume displaced by liquids entering the tank.

Vapor Heating Value – Heating value flow of the Peak Vapor.

Nominal Liquid – Liquid Rate out of the tank battery based on the average daily production, taken from the ProMax file.

Peak Liquid – Maximum liquid flow out of the simulated tanks (i.e. maximum post-flash liquid rate). This is a product of the Flow Multiplier and liquid rate as determined by the Flow Basis selection

VENT SYSTEM PARAMETERS

Flow Correlation - The selected flow correlation for pressure drop calculations through the vent system. Colebrook is a general application single phase correlation using an assumed pipe roughness of 0.0018". Spitzglass is a low pressure vapor correlation for pipes less than 12" in diameter with the vapor at 60°F and less than 1 psig. Oliphant is correlated for 15 to 100 psia. If Maximum is selected, then the three correlations are run and the one providing the greatest pressure drop is used.

Tank Temperature – Highest expected temperature in the tank.

Atmospheric Pressure – Atmospheric pressure at the facility.

Relief Pressure – Lowest Relief Device set-point pressure in the system. This could be a thief hatch or some other type of relief device.

Control Device DP – Total expected pressure drop for the control device, inclusive of any additional equipment such as scrubbers or detonation arrestors.

Elevation Change - Difference in elevation between the top of the tank and the inlet of the control device. A negative value indicates that the control device outlet is lower than the top of the tank while a positive value indicates that the control device outlet is higher than the top of the tank.

Collected Liquid Height - Estimate of static liquid expected in low spots of the closed vent system.

TANK RESULTS

Tank – Name of the tank corresponding to the tank name in the Vent System Configuration diagram.

Tank in Use – Indicates whether an existing tank is in use or not. "In use" is defined as having production fluids fed into the given tank and does not include tanks used for overflow purposes only.

Pressure - Calculated tank back pressure displayed in ounces per square inch and pounds per square inch gauge

Relief Frac - Tank pressure divided by the Relief Pressure. A value greater than 100% indicates vapor is exiting the relief device on the given tank.

VENT LINE PARAMETERS

Pipe # - Pipe numbers 1-15 correspond to lines labeled 1-15 in the Vent System Configuration diagram.

Pipe ID - Actual internal diameter of the length of pipe corresponding to the Pipe # on the Vent System Configuration diagram

Length - Actual length of the segment of pipe, regardless of orientation.

 # Fittings - Total number of fittings in the segment of pipe, regardless of type. All fittings are treated as 90 degree elbows for calculation purposes.

Flow - Calculated Peak Vapor Flow for the section of pipe.

Pressure - Calculated back pressure for the section of pipe.

VENT SYSTEM CONFIGURATION

This diagram is a representation of the tank battery and vent system configuration. A green or dark colored tank indicates a tank "in use". A light grey tank indicates a tank that is present but not in use. A tank with outlined dashed lines does not exist. Vent lines are only considered for tanks that exist.